

Claims

WHAT IS CLAIMED IS:

- 5 1. A video overlay apparatus comprising:
a video scaler operatively responsive to input video data; and
a programmable switching mechanism, operatively coupled to the video
scaler, to selectively route video data to one of a plurality of video overlay generators to
facilitate selective display of overlay data on a display device.
- 10 2. The video overlay device of claim 1 wherein the programmable switching
mechanism includes a programmable register.
- 15 3. The video overlay device of claim 1 including:
a first display engine responsive to first graphics data for generating first
video window timing data,
a second display engine responsive to second graphics data for generating
second video window timing data ,
a first video overlay generator operatively responsive to first graphics
20 data; and
a second video overlay generator operatively responsive to the second
graphics data.
- 25 4. The video overlay device of claim 3 wherein each of the first and second video
overlay generators includes:
a graphics data unpacker operative to unpack graphics data received from
a respective display engine;
a keyer operatively coupled to the graphics data unpacker and responsive
to the selectively route video data from the programmable switching mechanism;
30 and

~~a data packer operatively coupled to the keyer to pack combined video and graphics data from the keyer.~~

5. The video overlay device of claim 1 wherein the programmable switching
5 mechanism includes a selectable video clock source operatively coupled to the video
scaler wherein the video scaler scales input video corresponding to a display engine for at
least one of the plurality of video overlay generators in response to a video clock signal
output from the selectable video clock source.

10 6. The video overlay device of claim 3 wherein the programmable switching
mechanism further facilitates programming of frame buffer space for each display engine
based on which video overlay generator has been selected to receive input video.

15 7. The video overlay device of claim 5 wherein the selectable video clock source
includes a programmable switch to facilitate switching between a plurality of display
dependent clock signals that are selectively coupled to a common video scaler line buffer.

20 8. The video overlay device of claim 1 including a user interface operable to control
the programmable switching mechanism to facilitate selective overlay display on a per
application basis.

9. A video overlay apparatus comprising:
a video scaler operatively responsive to input video data;
a first display engine responsive to first graphics data for generating first
video window timing data,
5 a second display engine responsive to second graphics data for generating
second video window timing data ,
a first video overlay generator operatively responsive to first graphics
data;
a second video overlay generator operatively responsive to the second
10 graphics data; and
a programmable switching mechanism, operatively coupled to the video
scaler, to selectively route video data to one of a plurality of video overlay generators to
facilitate selective display of overlay data on a display device wherein the programmable
switching mechanism includes a selectable video clock source operatively coupled to the
15 video scaler wherein the video scaler scales input video corresponding to a display engine
for at least one of the plurality of video overlay generators in response to a video clock
signal output from the selectable video clock source.

10. The video overlay device of claim 9 wherein the programmable switching
20 mechanism includes a programmable register.

11. The video overlay device of claim 9 wherein each of the first and second video
overlay generators includes:

a graphics data unpacker operative to unpack graphics data received from
25 a respective display engine;

a keyer operatively coupled to the graphics data unpacker and responsive
to the selectively route video data from the programmable switching mechanism;
and

a data packer operatively coupled to the keyer to pack combined video and
30 graphics data from the keyer.

12. The video overlay device of claim 11 wherein the programmable switching mechanism further facilitates programming of frame buffer space for each display engine based on which video overlay generator has been selected to receive input video.

13. The video overlay device of claim 9 wherein the selectable video clock source includes a programmable switch to facilitate switching between a plurality of display dependent clock signals.

14. The video overlay device of claim 1 including a user interface operable to control
10 the programmable switching mechanism to facilitate selective overlay display on a per
application basis.

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15. A video overlay method comprising the steps of:
scaling input video through a common video scaler for a plurality of video overlay generators; and
selectively routing video data from the common video scaler to one of the plurality of video overlay generators to facilitate selective display of overlay data on a display device.

16. The video overlay method of claim 15 including controlling the selective routing of video data using a programmable switching mechanism that includes a programmable register.

17. The video overlay method of claim 15 including:
providing first video window timing data from a first display engine responsive to first graphics data,
providing second video window timing data from a second display engine responsive to second graphics data,
generating a first video overlay based on first graphics data and at least a portion of selectively routed input video data; and
generating a second video overlay based on second graphics data and at least a portion of selectively routed input video data.

18. The video overlay method of claim 17 including:
unpacking graphics data received from a respective display engine;
keying video and graphics data from a respective display engine and the selectively routed video data selectively routed by a programmable switching mechanism; and
packing combined video and graphics data for each respective video graphic overlay generator for alternate output to the display.

19. The video overlay method of claim 18 wherein the programmable switching mechanism includes a selectable video clock source operatively coupled to the video

scaler wherein the video scaler scales input video corresponding to a display engine for at least one of the plurality of video overlay generators in response to a video clock signal output from the selectable video clock source.

5 20. The video overlay method of claim 15 including the step of programming of frame buffer space for each display engine based on which video overlay generator has been selected to receive input video.

10 21. The video overlay method of claim 19 wherein the selectable video clock source includes a programmable switch to facilitate switching between a plurality of display dependent clock signals.

15 22. The video overlay method of claim 15 including providing a user interface operable to control a programmable switching mechanism to facilitate selective overlay display on a per application basis.